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Report of the Secretary-General

Addendum

Environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products*

(Chapter 19 of Agenda 21)

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* The report was prepared by the United Nations Environment Programme (UNEP) as task manager for chapter 19 of Agenda 21, in accordance with arrangements agreed to by the Inter-Agency Committee on Sustainable Development (IACSD). It is the result of consultation and information exchange between United Nations agencies, international and national science organizations, interested government agencies and a range of other institutions and individuals.

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INTRODUCTION

1. This report reviews progress made in the implementation of the objectives set out in chapter 19 of Agenda 21 (Toxic chemicals),[1] taking into account the decisions taken by the Commission on Sustainable Development on this subject at its second session, in 1994. As we move towards the twenty-first century, it is clear that a substantial use of chemicals is essential to meet the social and economic goals of the world community. Today's best practices demonstrate that chemicals can be used widely in a cost-effective method, with a high degree of safety and in a manner protective of the environment. Chemicals should be manufactured, imported, exported, processed, transported, distributed in commerce, used and disposed of in ways that protect human health and the environment. Human exposure and pollution of the environment may arise at all stages in the life-cycle, from initial production to ultimate disposal. Much still remains to be done to ensure the prevention of harm to human health and the environmentally sound management of chemicals. Chapter 19 of Agenda 21 noted this need and provided agreed guidelines and policies on how best to address the issues in the years to come.

I. KEY OBJECTIVES

2. In chapter 19, Environmentally sound management of toxic chemicals, the United Nations Conference on Environment and Development designated objectives within six programme areas for increased national and international efforts. Some of the key objectives of chapter 19 are:

(a) To strengthen international risk assessment. Several hundred priority chemicals or groups of chemicals, including major pollutants and contaminants of global significance, should be assessed by the year 2000, using current selection and assessment criteria;

(b) To produce guidelines for acceptable exposure to a greater number of toxic chemicals, based on peer review and scientific consensus, distinguishing between health- or environment-based exposure limits and those relating to socio-economic factors;

(c) To make available, if feasible, by the year 2000, a globally harmonized hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols;

(d) To promote intensified exchange of information on chemical safety, use and emissions among all involved parties;

(e) To achieve by the year 2000, if feasible, full participation in the implementation of the prior informed consent (PIC) procedure, including possible mandatory applications through legally binding instruments contained in the Amended London Guidelines for the Exchange of Information on Chemicals in International Trade and in the FAO International Code of Conduct on the Distribution and Use of Pesticides, taking into account the experience gained within the PIC procedure;

(f) To eliminate unacceptable or unreasonable risks and, as far as economically feasible, to reduce risks posed by toxic chemicals by employing a broad-based approach, involving a wide range of risk-reduction options and by taking precautionary measures derived from a broad-based life cycle analysis;

(g) To put in place by the year 2000, national systems for environmentally sound management of chemicals, including legislation and provisions for implementation and enforcement, in all countries, to the greatest extent possible;

(h) To reinforce national capacities to detect and halt any illegal attempt to introduce toxic and dangerous products into the territory of any State in contravention of national legislation and relevant international legal instrument;

(i) To assist all countries, particularly developing countries, to obtain all appropriate information concerning illegal traffic in toxic and dangerous products.

II. SUCCESSES

3. In order to respond to requests from Governments for improved communication and coordination among Governments, non-governmental organizations and intergovernmental organizations and to address many of the recommendations for a strengthened International Programme on Chemical Safety (IPCS), called for by the Conference on Environment and Development (UNCED), two new international entities have been formed: the Inter-Organization Programme for the Sound Management of Chemicals (IOMC), and the Intergovernmental Forum on Chemical Safety (IFCS). IFCS, created in Stockholm in April 1994, is a non-institutional mechanism for cooperation among Governments, intergovernmental organizations and non-governmental organizations for the promotion of chemical risk-assessment and environmentally sound management of chemicals. With the aim of integrating and consolidating national and international efforts to promote chemical safety, the Forum is to provide policy guidance, develop strategies in a coordinated and integrated manner, foster understanding of the issues, and promote the requested policy support needed to discharge those functions. IOMC was established in 1995 to coordinate efforts of international and intergovernmental organizations (United Nations Environment Programme (UNEP), International Labour Organization (ILO), the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), the United Nations Industrial Development Organization (UNIDO), and the Organisation for Economic Cooperation and Development (OECD)) the assessment and management of chemicals. The scientific and technical work of IOMC is carried out through the existing structures of the six organizations, either individually or jointly. Together, these two mechanisms have established a framework for coordinating and harmonizing the efforts of Governments, non-governmental organizations, and intergovernmental organizations in meeting the objectives of chapter 19. Although there have certainly been some unfulfilled expectations in addressing the global chemicals agenda, these two mechanisms are demonstrating that, by acting in close cooperation, bodies engaged in chemical safety work can be more productive and attain higher quality results from a given level of effort and resources.

4. Work is well under way to develop a coordinated, step-wise process for the international assessment of existing chemicals and pesticides, with maximum sharing of the burden and maximum utility of the assessments. The IFCS target of 200 additional chemical evaluations by 1997 will be met through the activities of IPCS and OECD. The second target, of 300 more assessments to be produced by 2000, may, however, prove more difficult to meet, due to a waning commitment on the part of Governments and industry to devote resources to this work, given current budget restraints.

5. Several established international programmes continue to provide a basis for the development of international and national standards - e.g. food additives, food contaminants, veterinary drug residues, and pesticide residues. To date, over 1,160 chemicals and 260 pesticides have been evaluated. Providing environmental guidelines on specific pollutants, the second edition of the WHO Guidelines for Drinking Water Quality was recently published, and the second edition of the WHO Air Quality Guidelines for Europe is due in 1997.

6. In the field of methodologies for toxicity testing and risk assessment, IPCS and OECD have developed a framework for cooperation and mutual involvement and support. In addition to a number of ongoing activities, in 1993 a major effort was initiated to harmonize approaches to the assessment of risks from exposure to chemicals. Progress through all stages of these projects will result in efficient use of resources and consistency among assessments and would permit the broadest use of risk assessments, performed by both national authorities and international bodies. International standards on pesticide residues in food and food additives continue to be set by the FAO/WHO Codex Alimentarius, on the recommendation of the FAO/WHO Joint Meeting on Pesticide Residues and the Joint Expert Committee on Food Additives. These standards are now recognized in the Agreement on the Application of Sanitary and Phytosanitary Measures.

7. In the Washington Declaration on the Protection of the Marine Environment from Land-based Activities, adopted at the Intergovernmental Conference to Adopt a Global Programme of Action for the Protection of the Marine Environment from Land-based Activities,[2] (Washington, D.C., October/November 1995), Governments agreed to act to develop a global, legally binding instrument for the reduction and/or elimination of emissions and discharges and, where appropriate, the elimination of the manufacture and use of persistent organic pollutants (POPs). At the regional level, the executive body for the Convention on Long-range Transboundary Air Pollution,[3] under the Economic Commission for Europe (ECE) agreed, at its thirteenth session, in December 1995, that negotiations for a protocol on POPs could be initiated and gave the Working Group on Strategies the mandate to initiate such negotiations, with a proposed deadline of end 1997. UNEP Governing Council decision 18/32, adopted in May 1995, invited IOMC, working with IPCS and the IFCS, to initiate an assessment process on POPs, starting with a list of 12 substances. It further invited IFCS to develop, based on the results of the assessment process and building upon the work that had already been done under the Convention and the conclusions of the Intergovernmental Conference, recommendations and information needed for a possible decision regarding appropriate international action on POPs for consideration by the UNEP Governing Council and the World Health Assembly. A working group involving the full participation of Governments, non-governmental

organizations and intergovernmental organizations was convened by UNEP on behalf of IOMC. It completed the assessment process and provided the basis for a series of IFCS recommendations which concluded, inter alia, that international action, including a global legally binding instrument, was needed to reduce the risks to human health and the environment arising from the release of the 12 specified POPs. IFCS recommended that the UNEP Governing Council invite UNEP to prepare for and convene, together with relevant international organizations, an intergovernmental negotiating committee, with a mandate to prepare an international legally binding instrument for implementing international action, initially beginning with the 12 specified POPs. IFCS further proposed that the negotiating committee be directed to establish, at its first meeting, an expert group charged with the development of science-based criteria and a procedure for identifying additional POPs as candidates for future international action.

8. Within the framework of the IOMC Coordinating Group for the Harmonization of Chemical Classification Systems, the ILO, OECD and the Committee of Experts on the Transport of Dangerous Goods are the key international bodies responsible for implementing this programme area. All the technical work of harmonization is carried out mainly by countries with existing systems. Other stakeholders, including organizations of industry, workers, consumers and those concerned with protection of the environment, are also involved. Work is on schedule towards meeting the deadlines of the end of 1997 for harmonization of classification criteria and tests and of 2000 for hazard communication tools (labelling and data sheets). The elaboration of a mechanism, either binding or non-binding, to implement a globally harmonized system at the national and international levels, will be discussed/consolidated at the second session of IFCS in February 1997. The high priority given by all stakeholders to this programme area is illustrated by the strengthened intergovernmental and inter-agency cooperation in building consensus views, and the higher level of effort devoted to completing the necessary technical work. There is also wide recognition that implementation of a globally harmonized system will have a beneficial impact on human health and the environment, reduce the need for animal testing, and facilitate international trade in chemicals.

9. Recognizing the roles of IOMC and other organizations in delivering information to their constituencies on toxic chemicals, a coordinating group on information exchange was formed, under the framework of IOMC, to promote a coordinated delivery of such data to Governments and others who need them. The group is helping to promote a delivery of information on CD-ROM, through the Internet, and via printed material in a much more coordinated and thorough way. In order to improve access to information on chemicals, Japan is contributing to the establishment of a pilot programme on a new global information network on chemicals.

10. With regard to prior informed consent (PIC), UNEP and FAO are jointly implementing the PIC procedure. The number of countries participating in the voluntary procedure has increased to 148, with 17 chemicals subject to it. There will be further development and distribution of decision guidance documents on 17 additional chemicals and transmission of decisions from the Governments to all participating countries. Negotiations are well under way for a PIC convention. The first two sessions of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of

the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade were held (Brussels, 11-15 March 1996; Nairobi, 16-20 September 1996). Extensive progress has been made on the instrument, with one or two additional negotiating sessions to take place before a conference of plenipotentiaries to be held in the Netherlands in 1997.

11. Since 1993, progress has been made to implement, in a coordinated manner, key recommendations of chapter 19 related to emission inventories, or what is now titled pollutant release and transfer registers (PRTRs). Two major developments include the publication of a PRTR guidance document by OECD, titled "PRTRs: a tool for environmental policy and sustainable development", and the implementation of PRTR pilot design projects in three countries by the United Nations Institute for Training and Research (UNITAR), which documented the feasibility of introducing PRTRs as an environmental management tool in industrializing and developing countries and led to the development of a UNITAR series of guidance documents to assist countries in implementing national PRTR design projects. In addition, PRTR-related support services have been initiated by UNEP (an Internet clearing-house on international and national PRTR activities), WHO (a document on emission estimation techniques), ECE (an emission inventory guide for air pollution), and UNIDO (a database system for PRTR data). Together these activities and services will be able to assist interested countries to design and implement a national PRTR system, subject to available resources.

12. In recognizing the importance of taking action to address the public health and environmental hazards of chemicals, the second session of the Commission noted the severe impacts on health of human exposure to lead and encouraged efforts to reduce such exposure. Several intergovernmental bodies and United Nations agencies are engaged in various ongoing activities dealing with lead contamination, including the inhalation of lead emitted into the air from the combustion of leaded petroleum. For example, recommendations of a recent IPCS Environmental Health Criteria Task Group meeting on inorganic lead included a set of public health measures directed towards reduction and prevention of exposure to lead through, inter alia, the use of lead in gasoline, paints, food containers, water treatment and distribution systems, agriculture, and folk remedies and cosmetics.

13. The most significant reductions in exposure to lead have been achieved by the OECD countries. Environment Ministers of OECD adopted a declaration on lead which commits their countries to advance national and cooperative efforts to reduce risks from exposure to lead. Several other regional initiatives and actions have been undertaken as regards the health and environmental impact of human exposure to lead. For example, the Summit of the Americas (Miami, December 1994), resulted in declarations supporting, inter alia, governmental action in relation to chemical safety and the other objectives in chapter 19, among them action regarding pesticides, lead contamination, pollution prevention, risk reduction, waste, air and water quality, public awareness, and implementation of the PIC procedure.

14. The UNIDO Regional Network on Pesticides in Asia and the Pacific, has been expanded to 15 countries. Based on its successes, certain African and Arab countries have requested UNIDO to establish a similar network for risk reduction

in agrochemical development. The UNIDO Guidelines on Integrated Safety in Pesticide Formulation, which were formulated for the developing countries, have been adopted in many of them. As a result of these efforts, there has been greater attention paid to ecotoxicology and the environmental monitoring of chemicals of concern in developing countries.

15. IPCS has published guidelines on what comprises a poison information centre, a handbook on poison control for field use, and a manual on basic analytical techniques. Its INTOX package, designed to help countries establish their own poison centres, consists of a database on CD-ROM of information on the prevention, diagnosis and treatment of poisoning from several hundred chemicals, drugs poisonous plants and animals, together with information management software. It is available in English, French, Indonesian, Portuguese and Spanish.

16. In a project on the prevention and disposal of obsolete pesticide stocks, FAO is promoting the use of preventive measures to avoid further accumulation of obsolete pesticides, developing guidelines on preventing accumulation of obsolete pesticides, describing methods of disposal of such pesticides in developing countries, and compiling inventories of obsolete pesticides in 32 countries. FAO has commenced high-temperature incineration of obsolete pesticides on a limited scale.

17. Integrated pest management (IPM) is a major strategy for reducing reliance on pesticides. FAO is assisting countries in Asia to establish IMP through participatory training programmes, establishing farmer field schools and training for trainers. It is also extending the experience gained in the rice IPM programme to other crops and other countries in other regions where non-sustainable crop protection practices are used; co-sponsoring, with the World Bank, UNDP and UNEP, a facility that will use participatory approaches to promote IPM by farmers; and raising awareness, developing capabilities to implement programmes and building national capacities that consolidate and institutionalize national policy on the use of pesticides within the framework of IPM principles and practices.

18. Strengthening national capabilities and capacities for managing chemicals is a major focus of the operations of all of the agencies. Despite diminishing resources, IOMC organizations have maintained certain capacity-building activities - for example:

(a) A UNITAR/UNEP/FAO joint training programme, on the operation of the PIC programme has been conducted in all regions of the world;

(b) UNEP has conducted extensive training in establishing national information systems for managing chemicals information, on the national, subregional, and regional levels;

(c) The ILO is currently implementing an action programme in eight countries aimed at strengthening factory inspections in dealing with chemical safety issues and promoting national coordination in this area;

(d) UNITAR is supporting 30 countries in the preparation of comprehensive national profiles to assess their chemicals management infrastructure;

(e) UNITAR has initiated a UNITAR/IOMC pilot capacity-building programme to assist three countries in implementing chapter 19 in an integrated way;

(f) FAO provides assistance on pesticide management in member countries through its Technical Cooperation Programme. It has also started a Netherlands-funded project to improve pesticide management in Sahelian countries. IAEA and FAO are establishing a laboratory on pesticide quality in Seibersdorf, Austria, for reference and training purposes;

(g) UNIDO, in cooperation with UNEP, has set up cleaner production centres in 12 different countries, with a regional centre planned for Greece;[4]

(h) As part of the Global Network for Safety in Chemical Production (GLONESA), UNIDO, jointly with the International Union of Pure and Applied Chemistry (IUPAC) and UNESCO, has set up an advanced chemical safety training programme using North/South cooperation. In India and Poland efforts are under way to set up a national network on integrated safety in chemical production, with emphasis on small- and medium-sized enterprises;

(i) IPCS has undertaken a new training initiative, based on a multiphased approach consisting of a multisectoral briefing for high-level national and local officials, followed by a targeted, intensive training component on topics specifically defined by the country;

(j) The IPCS approach to training programmes for trainees in the safe use of pesticides and poison control has led to multiplier effects in a number of countries.

19. Sources of information useful when responding to chemical emergencies have been established in many countries and regions, and access to their sources has been improved. National systems for emergency preparedness and response, including the training of personnel, with the aid of the UNEP/APELL programme have also been adopted. A wider recognition has been achieved at governmental and industry levels of the importance of preventing, preparing for and responding to accidents, and including these objectives in planning industrial developments.

III. PROMISING CHANGES

20. The recommendation of IFCS that by 1997 all countries should prepare a national profile has received overwhelming support from developing countries and countries in economic transition. By August 1996, more than 70 countries had formally applied to the UNITAR/IOMC National Profile Support Programme, referred to above. The Programme is a country-driven process involving, at the country level, all concerned parties inside and outside the Government, while at the international level all key organizations concerned with chemicals management cooperate in key aspects of programme implementation. Once developed, national profiles should provide a better basis for directing and coordinating efforts to

support the strengthening of national infrastructures for the management of chemicals.

21. Governments, industry and non-governmental organizations have been collecting and generating the data required for risk assessment of chemicals produced in high volume and other chemicals of concern in the framework of IOMC programmes on testing and assessing existing chemicals. As a result of their cooperation, the number of high-quality assessments, for use by countries in making decisions regarding risk management, is being significantly increased.

22. IOMC partners are cooperating to ensure that efforts in this area are not duplicated and that national assessments, received by international peer groups; initial assessments, which identify the need for further work on chemicals produced in high volume; and comprehensive assessments, on other chemicals of concern, are used coherently, to make the best and most useful information available globally.

23. In 1995, the Global Environment Facility (GEF), a financial mechanism for global environmental improvements, jointly administered by UNDP, UNEP, and the World Bank, adopted an operational strategy which, for the first time, will facilitate funding for handling chemical contaminants in international waters. This initiative now offers the possibility of a significant and sustainable resource base for addressing many toxic chemical issues at the global, regional, and national level.

24. The collaboration between IFCS and IOMC in researching and arriving at proposed recommendations for global action on POPs represents a significant milestone in cooperation among Governments, non-governmental organizations and intergovernmental organizations in addressing a major toxic chemical issue. The collaboration, based upon sound science and high-quality assessment, was conducted in an expedited, open and transparent manner, and serves as a useful model for future initiatives to address the risks of toxic chemicals.

25. Overall, the creation of the IOMC and IFCS has greatly improved cooperation and coordination on toxic issues. These mechanisms have facilitated a better understanding of all of the various initiatives taken to meet the objectives of chapter 19 and have improved the coordination of the various bodies engaged in work in this area.

IV. UNFULFILLED EXPECTATIONS

26. Some of the expectations relevant to chapter 19 have not been fulfilled. For example, although IOMC partners will have produced 200 new international chemical evaluations by the end of 1997, it will be difficult for them to meet the target set by the Conference of 500 new evaluations by the end of the century. Progress on the proposed strengthening of international institutions and networks for information exchange on toxic chemicals has been less than what is needed, and consequently the improvements hoped for in the global sharing of data have not been realized. One of the major hindrances is the difficulty of gaining access to information easily at all levels (national, subnational and local). It is unlikely that, by the year 2000, all - or even most - countries will have systems in place for the environmentally sound management of chemicals, despite the efforts of IOMC organizations and bilateral efforts.

27. The failure to attain the hoped for objectives can largely be attributed to two things. First, there is a significant shortfall in the resources necessary for the work to be done. Not only have new resources not been forthcoming, but many of the entities involved are facing serious - and in some cases, even precipitous - reductions in funds. This situation is true not just at the level of intergovernmental organizations, but also at the bilateral level and at the national level with regard to the financial commitment Governments are willing to make for their own programmes. Further, an increasing proportion of donor funding is targeted, rather than general, funding. Consequently, intergovernmental organizations have less flexibility in managing their resources creatively and fewer opportunities for effective collaboration with others. In addition to the resource shortage, in some areas, the commitment of some of the partners who agreed to implement the programmes has waned.

V. EMERGING PRIORITIES

28. Recent initiatives on a number of priority chemical issues (such as POPs) are making progress in the development of international legally binding instruments for implementing international actions to reduce and manage risks. Comprehensively and effectively to address urgent problems, voluntary measures, which may be implemented as a complement to, or independently of, legally binding instruments, should be considered and pursued. Such voluntary measures may have a greater likelihood of achieving targeted successes in a shorter period of time.

29. Governments have identified the management and disposal of obsolete stocks of pesticides and possibly other chemicals as a high priority. In view of recent global initiatives to address the problems associated with some classes of chemicals (e.g., POPs), the issue is likely to receive increasing attention. Currently the resources and efforts on the part of intergovernmental organizations to assist in this area (e.g., the FAO programme on obsolete pesticides) are limited.

30. Concern has emerged about certain toxic chemicals that may produce their adverse effects at low environmental levels. Some of them, such as endocrine disruptors and immuno-toxic chemicals, are coming under more scientific and public scrutiny and may become priorities for further research, assessment or action.

Notes

[1] Report of the United Nations Conference on Environment and Development, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] A/51/116, annex I, appendix II.

[3] See E/ECE/1010.

[4] See also E/CN.17/1997/2/Add.24.

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Environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes*

(Chapter 20 of Agenda 21)

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V. EMERGING PRIORITIES ..... 28 - 36 8

I. KEY OBJECTIVES

1. This report reviews progress made in the implementation of the objectives set out in Chapter 20 of Agenda 21 (Environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes),[1] taking into account the decisions taken by the Commission on Sustainable Development on this subject at its second session, in 1994. Chapter 20 of Agenda 21 addresses the need to develop environmentally sound management of hazardous wastes in ways that protect human health and the environment and ensure proper management of natural resources. It sets as overall objectives the prevention and minimization of hazardous wastes and the environmentally sound management of the remaining wastes.

2. Chapter 20 calls specifically for ratification or accession of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and the expeditious elaboration of its related protocols, and for the elimination of the export of hazardous wastes. It also calls for the ratification and full implementation by the countries concerned of the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa and the elaboration of a protocol on liability and compensation. Chapter 20 calls for international and regional cooperation to achieve the goals contained therein.

3. The four major programme areas of chapter 20 and their main objectives are outlined below.

A. Promoting the prevention and minimization of hazardous wastes

(a) To reduce the generation of hazardous wastes, as part of an integrated cleaner production approach;

(b) To optimize the use of materials by recycling;

(c) To enhance knowledge of the economies of prevention and management of hazardous wastes.

B. Promoting and strengthening institutional capacities in hazardous waste management

(a) To establish appropriate national measures and programmes in environmentally sound hazardous waste management;

(b) To promote research and development, human resources development, capacity-building and the dissemination of information concerning hazardous wastes.

C. Promoting and strengthening international cooperation in the management of transboundary movements of hazardous wastes

(a) To harmonize the procedure and criteria used for identifying waste and for controlling transboundary movements of hazardous wastes, particularly to countries that do not have the capacity to deal with those wastes in an environmentally sound way or that have banned the import of hazardous wastes;

(b) To promote the development of control procedures for transboundary movements that encourage environmentally and economically sound recycling operations.

D. Preventing illegal international traffic in hazardous wastes

(a) To halt illegal attempts to introduce hazardous waste into any State in contravention of national and international legislation;

(b) To assist all countries, in particular developing countries, in obtaining all appropriate information on illegal traffic in hazardous wastes;

(c) To provide appropriate assistance, within the framework of the Basel Convention, to countries that suffer the consequences of illegal traffic in hazardous wastes.

II. SUCCESSES

4. Since 1992, the organizations of the United Nations have collectively or separately provided a platform for discussion, debate and coordination of hazardous waste management and cleaner production activities; information, guidance documents and training support to enable decision makers in Governments and in other parts of society to make environmentally sound decisions; and intergovernmental forums for the negotiation and implementation of instruments to assist countries with policies and measures for the management of hazardous waste and the control of transboundary movements of wastes.

Programme area A: Promoting the prevention and minimization of hazardous wastes

5. There is an increasing worldwide interest in a "cleaner production" approach, which can at the same time reconcile economic and environmental objectives. "Eco-efficiency" is now a term used, in particular by industry, to promote the effective implementation of this preventive approach. In addition, it has been recognized that the concept also applies to other economic sectors, in particular agriculture, health services and households. Training material has been developed by various international agencies to assist United Nations Member States in implementing cleaner production practices. For example, a "train-the-trainers" kit has been jointly produced by the International Chamber of Commerce (ICC), the Fédération internationale des ingénieurs (FIDIC) and the United Nations Environment Programme (UNEP) on environmental management systems,

which will assist in implementing the 14000 standard of the International Organization for Standardization (ISO). In addition, UNEP and the United Nations Industrial Development Organization (UNIDO) have jointly prepared a training kit for managers of national cleaner production centres. Progresses in cleaner production worldwide are regularly reviewed: every two years, UNEP convenes a high-level seminar involving the various partners in government, industry, non-governmental organizations and intergovernmental organizations, to assess achievements and barriers to the development of cleaner production and eco-efficiency, and to suggest future action. Since the Conference, such seminars have been held in Paris, Warsaw and Oxford.

6. A number of projects around the world, involving several organizations of the United Nations system, clearly demonstrate the results that can be achieved by the cleaner production approach. For example, a cleaner production project jointly implemented by the World Bank, UNEP and the Government of China led to the establishment of China's National Cleaner Production Centre, a network of institutions active in cleaner production, and to more than 150 Chinese professionals being qualified in environmental auditing. Proven annual benefits have been calculated at US$ 2.9 million in 27 enterprises alone, with a catalytic effect all over China.

7. Eight national cleaner production centres have now been established in Brazil, China, the Czech Republic, India, Mexico, Slovakia, the United Republic of Tanzania and Zimbabwe with support from UNIDO and UNEP. Another 43 similar centres in 37 countries, such as Indonesia, South Africa and Tunisia, have also been established by the countries themselves or with the support of bilateral organizations. All centres are now part of a worldwide network exchanging experience through workshops and newsletters.

8. Information on cleaner production technologies, policies and best practices has been increasingly made available at national and international levels. The UNEP International Cleaner Production Information Clearinghouse (ICPIC) contains about 600 bibliographic references, 300 cleaner production case studies, including cost benefit analyses, and a list of more than 100 organizations active in cleaner production. The information is available on paper and diskette and will soon be on the Internet. ICPIC has a corollary in UNIDO's information clearing house, INTIB, with its Energy and Environment Information System. A number of relevant publications have been produced, such as those from UNEP on life-cycle assessment, government policies and strategies for cleaner production.

9. The international financial institutions are now aware of the standards that the projects they are funding should achieve. For example, in cooperation with UNEP and UNIDO, the World Bank has adopted guidelines for its field project managers which emphasize the need for a cleaner production/pollution prevention approach.

10. The Economic Commission for Europe (ECE), through its Convention on Long-range Transboundary Air Pollution and related protocols on SOx and NOx compounds, has developed a by-products management policy, followed by branch-specific approaches for stationary installations covering all industrial

sectors relevant to transboundary pollution. The cyclical ECE seminars issue publications on control technology for emissions from stationary sources.

Programme area B: Promoting and strengthening institutional capacities in hazardous waste management

11. Over 100 countries are now Parties to the Basel Convention. The fourth meeting of the Conference of the Parties was held in October 1997. In order to assist in establishing appropriate national measures, the Convention secretariat has produced a number of publications, including various technical guidelines for the environmentally sound management of wastes subject to the Convention (organic solvents, used oils, PCBs, household wastes). It has also issued guidelines for the management of disposal facilities (landfill, incineration, oil re-refining), an updated model legislation on waste management, a compilation of national provisions, and guidance documents on the management of hazardous wastes and transboundary movements of hazardous wastes destined for recovery operations. A number of seminars have been held to increase awareness of the Basel Convention and of environmentally sound management of hazardous wastes, whether moved across frontiers or generated locally. Many countries have adopted legislation and established the necessary mechanisms to implement the Basel Convention.

12. In Latin America and the Caribbean, Africa, Central and Eastern Europe, Asia and the Pacific, there are plans for the establishment of regional or subregional centres for training and technology transfer regarding management of hazardous wastes and the minimization of their generation. The centres will work in close association on waste minimization issues with the national cleaner production centres. The regional centre for Eastern Europe, based in Slovakia, is now in operation.

13. The IMO Office for the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter has published the report of the Interagency Global Waste Survey, which includes country case studies of policies, measures and programmes in hazardous waste management. UNEP has undertaken an international survey of the situation with respect to contaminated sites. Technical guidelines and training material for site evaluation and remediation have been prepared with the assistance of various partners.

14. More adequate waste treatment facilities are now available in industrialized countries, economies in transition and developing countries. An increasing number of countries have developed or have national plans for hazardous waste management. Assistance has been increasingly given to developing countries to deal with immediate or acute problems (such as asbestos in buildings, PCB wastes, obsolete pharmaceuticals and pesticides).

Programme area C: Promoting and strengthening international cooperation in the management of transboundary movements of hazardous wastes

15. The third meeting of the Conference of the Parties to the Basel Convention, held in September 1995 in Geneva, adopted a decision to amend the Convention with respect to a prohibition by all Parties members of both the Organisation for Economic Cooperation and Development (OECD) and the European Union (EU) of

all transboundary movements of hazardous wastes that are destined for final disposal in other States. It also decided to phase out by 31 December 1997 and prohibit from that date all transboundary movements of hazardous wastes for recovery, recycling, reclamation, direct use or alternative uses from party members of OECD and EU to other States. This export ban will help strengthen the countries' existing import bans and be an incentive for them to minimize the generation of wastes at source. The Technical Working Group under the Convention is making progress in defining in an unambiguous way which hazardous wastes apply to the Convention.

16. The Bamako Convention came into force on 20 March 1996, 90 days after Cameroon ratified the instrument. At least 11 countries have ratified the Convention, and many more are expected to follow in the near future. Other regional protocols concerning the transboundary movements of hazardous wastes have entered into force (for example, in the Pacific region) or are being developed. Work continues on the preparation of a protocol on liability and compensation for damages resulting from transboundary movements or disposal of hazardous wastes.

17. The OECD continues to maintain and review its listing of hazardous waste (red, amber, green lists) concerning documentation requirements for transfrontier movements for recycling.

Programme area D: Preventing illegal international traffic in hazardous wastes

18. International cooperation, involving Interpol, inter alia, continues to help prevent illegal traffic in hazardous wastes, and major collaborative efforts are being made by the World Customs Organization, the secretariat of the Basel Convention, EU and OECD for the separate identification of hazardous wastes in a harmonized system of classification and labelling of chemicals, as mentioned in chapter 20 of Agenda 21.

III. PROMISING CHANGES

19. Related cleaner production and eco-efficiency approaches are now recognized by an increasing number of Governments, and by business and industry as the way to reconcile environmental protection, effective management of natural resources and economic development. There is an increasing recognition that cleaner production patterns and adequate waste management cannot be successfully achieved exclusively through the use of adequate technologies, but that good management practices and systems must also be adopted.

20. Many countries are developing corresponding policies and strategies and setting up the necessary institutional framework to inform and train industry. The establishment of national cleaner production centres is one example of this progress.

21. Decision makers in government and industry now have access to quality and "user friendly" information on cleaner technologies, on technologies to treat hazardous wastes, on operating practices, and on policies required to achieve environmentally sound management of hazardous wastes. Information is provided

using various disseminating mechanisms, including new electronic systems and networks. An inventory of information sources on environmentally sound technologies is available, and a coordinating mechanism between the various providers of information is being created, facilitated by UNEP, better to identify users' need and avoid duplication of efforts.

22. Training and capacity-building are continuing through the publication and dissemination of UNEP's training manuals, including the translation of key manuals into Spanish, Russian and Chinese. The secretariat of the Basel Convention continues to organize regional training meetings in the context of its programme to develop regional centres. The education of future industry managers is also taking place, and UNEP together with the World Business Council for Sustainable Development and a number of educational institutions has undertaken a process to ensure the inclusion of the environmental dimension in the curriculum of business and engineering schools and universities.

23. The ECE countries have introduced the so-called 5-R policy and strategy which promotes reduction at source, replacement, recycling, recovery and reutilization, laying the ground for cleaner production programmes. Similarly, the ECE programme on environmental performance review, designed for countries in transition, offers a good opportunity to monitor changes due to the implementation of policies for environmentally sound production and consumption and due to the enforcement of international agreements. It could also provide a model for other regions.

IV. UNFULFILLED EXPECTATIONS

24. In spite of the progress achieved towards environmentally sound management of hazardous wastes, financial and human resources are insufficient at both the national and international levels to fully implement chapter 20 of Agenda 21. When appropriate legislation and regulations do exist, they are often not complied with, due to lack of capacity or resources. Given that many countries, particularly in the developing world, lack adequate institutional capacity in hazardous waste management and in monitoring illegal imports of chemical and hazardous wastes, there is an urgent need for strengthening national capacity for the effective management of such wastes.

25. Technology choices made by countries still do not sufficiently take into account their overall environmental impact, in particular, the impact on wastes. There is a pressing need to accelerate the introduction of cleaner technologies that generate less hazardous waste in the first place, as opposed to continued reliance on more expensive and more environmentally dangerous end-of-pipe clean-up measures. Greater efforts are required at the international level to ensure adequate transfers of cleaner technologies, including transfers on a preferential or non-commercial basis, particularly to developing countries.

26. The need to control illegal traffic in wastes has led to regulations and procedures which might present difficulties for genuine recycling of some wastes, particularly by financially strapped institutions in both the public and private sectors. Small- and medium-size enterprises are often difficult to

reach, and still see "eco-efficiency" as an additional cost, not as a potential source of benefits.

27. In spite of efforts undertaken to facilitate the transfer of environmentally sustainable technologies,[2] there is still a need to enhance the transfer of more up-to-date technologies and to develop new techniques for cleaner production and waste reuse.

V. EMERGING PRIORITIES

28. While the focus has so far been put on the reduction of hazardous wastes from industrial processes, there is now need to develop ways to reduce hazardous wastes from other sources: hospitals, agriculture, domestic use, etc., through the redesign of products and improved operational practices. Goods for final consumption, such as electronic appliances, refrigeration and cars, need to be thoroughly addressed.

29. There is now need also to address the demand side of goods and services and reconsider consumption patterns.[3]

30. Contamination of soil and water (both surface and groundwater), resulting from past inadequate management of wastes, is gradually being given higher priority in developing countries and in countries in transition, as consciousness of its health impacts increases.[4]

31. In the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities,[5] persistent organic pollutants (POPs) are a priority concern. The control of discharges, direct or indirect, of hazardous wastes into the marine environment is part of this emerging priority.

32. The continued use of outdated technologies which contribute to the generation of unnecessary hazardous waste remains a problem, particularly in developing countries and economies in transition, and needs further attention by both Governments and international agencies.

33. Continued improvement in pollution prevention and efficient use of raw materials will probably not suffice to bring about the needed increase (by a factor of 4-6) in the productivity of the use of raw materials to achieve sustainable development. Technological innovations and breakthroughs are also required. Partnerships at the local, national and international levels, involving all stakeholders, must continue to be developed. Simultaneously, negotiated agreements by industry sectors, specifying quantitative targets, to minimize wastes and other emissions, should be increasingly used.

34. There is an urgent need to devote increased attention to the provision of adequate occupational safety and health conditions for workers involved in the management of hazardous wastes, including minimization, disposal and remediation activities.

35. Infectious material in health care waste emerges as a priority concern, particularly with the spread of AIDS. This includes not only hospital wastes but also other medical material discarded by health care facilities.

36. There is a need to develop better indicators to monitor progress in implementation in environmentally sound hazardous waste management and in controlling illegal traffic in hazardous wastes, particularly to developing countries.

Notes

[1] Report of the United Nations Conference on Environment and Development, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

[2] See also E/CN.17/1997/2/Add.37.

[3] See also E/CN.17/1997/2/Add.3.

[4] See also E/CN.17/1997/2/Add.17.

[5] A/51/116, annex II.